

CLAIMS

1. A method for separating a more hydrophobic grease or oil contaminant from a less hydrophobic aqueous coolant/lubricant emulsion in which the contaminant has accumulated and in which it is itself emulsified, comprising:

passing the contaminated coolant/lubricant through a fluid pervious filtration media which has been infused with an absorption composition cured in situ at the infused media, said composition comprising a homogeneous thermal reaction product of an oil component selected from the group consisting of glycerides, fatty acids, alkenes, and alkynes, and a methacrylate or acrylate polymer component;

whereby said contaminant is immobilized at said media and preferentially retained at said filter; and

collecting the purified filtrate having passed through said filtration media.

2. A method in accordance with claim 1, wherein said coolant/lubricant is a metalworking fluid.

3. A method in accordance with claim 1, wherein said coolant/lubricant is a drilling fluid.

4. A method in accordance with claim 2, wherein said metalworking fluid comprises an emulsion of a highly water soluble synthetic oil dispersed in an aqueous phase, and wherein said emulsion of oil passes substantially in its entirety through said filtration

media to be collected as a purified filtrate..

5. A method in accordance with claim 4, wherein said metalworking fluid further comprises a highly emulsified fatty acid mixture and wherein the fatty acid mixture passes substantially in its entirety through said filtration media to be collected in said purified filtrate.
6. A method in accordance with claim 3, wherein said drilling fluid comprises an emulsion containing synthetic oil as the continuous phase and brine as the discontinuous phase.
7. A method in accordance with claim 6, wherein the synthetic oil includes linear or isomerized C₁₆/C₁₈ alpha-olefins or esters.
8. A method in accordance with claim 1, wherein the molecular weight of the contaminant is higher than the molecular weight of the coolant/lubricant.
9. A method in accordance with claim 1, wherein the HLB of the contaminant is lower than the HLB of the coolant/lubricant.
10. A method in accordance with claim 9, wherein the HLB of the contaminant is in the range of 1 to 8.
11. A method in accordance with claim 9, wherein the HLB of the contaminant is in the range of 1 to 6.
12. A method in accordance with claim 9, wherein the HLB of the contaminant is in the range of 1 to 4.